

The various RAD storage units have the following capacities:

Model	Tracks	Bytes
7202	128	737,280
7203	256	1,474,560
7204	512	2,949,120

Access time is minimal because a read/write head is provided for each track—unlike storage units in which the head must be repositioned from track to track. Average rotational latency of the RAD storage unit is only 17 milliseconds; maximum latency is 34 milliseconds. The program can reduce this rotational delay by sensing the unit's current rotational position before initiating a Read or Write operation and transferring data beginning immediately at the next sector to be accessed.

Information is transferred to or from the RAD storage unit at an instantaneous rate of 188,000 bytes per second. A data record can overlap from sector to sector and even from track to track, because the controller hardware automatically selects sectors and tracks in increasing order.

Contents of data storage units are permanently protected against power failure that might otherwise destroy information. In addition, manual write-protect switches can be used to disable the write circuits for selected areas of the file. Disabling these circuits prevents a programming error, for example, from inadvertently destroying recorded information. Each switch inhibits writing on the 32 adjacent tracks associated with it.

OPERATION

Operating through a standard Sigma 8-bit I/O channel, the RAD storage units can perform any of the following operations:

- **Seek:** After issuing a Seek order, the computer transmits a 2-byte sector address to the controller, which then directs any subsequent read/write operation to begin at this address.
- **Write:** Upon receiving a Write order, the unit begins recording data when the sector specified by the previous Seek order is reached. Each byte received from the computer is recorded. Transmission continues until the computer indicates to the storage unit that the entire record has been transferred. If the information transmitted does not completely fill the last sector, the RAD unit writes zeros into the remainder of the sector. If a Write is attempted into a protected area, the unit immediately terminates the operation and reports this error condition to the computer channel.
- **Check Write:** A Check Write operation is used to verify recorded data. A Check Write is performed in a manner similar to a Write operation except that bytes transmitted to the unit are not recorded. Instead, they are compared with the information already stored in the unit. The unit informs the channel if a discrepancy is discovered.
- **Read:** After the storage unit receives a Read order, it begins reading when the sector specified by the previous Seek order is reached. Information read is transmitted in a byte-serial manner until all program-specified bytes have been read.
- **Sense:** A Sense order causes the storage unit to transmit 3 bytes of position and status information. The first

2 bytes contain the address currently stored in the controller. The first byte also indicates whether the track associated with the current sector address is write-protected. The third byte indicates the current rotational position of the last unit addressed.

SPECIFICATIONS

Operating Characteristics

Storage Capacity per Unit

Model 7202	737,280 bytes
Model 7203	1,474,560 bytes
Model 7204	2,949,120 bytes

Access Time

Average 17 msec

Maximum 34 msec.

Transfer Rate

(Instantaneous) 188,000 bytes/sec

Recording Format

360 bytes/sector
16 sectors/track

Environmental Conditions

Operating Temperature 50°F to 105°F

Operating Humidity 10% to 90%

Power Requirements

208v ac $\pm 10\%$, 60 cps
 ± 0.5 cps*, 3 phase

Cable Length

Model 7201 Controller to Computer 40 feet (All RAD storage units controlled by the Model 7201 Controller must be situated physically adjacent to one another)

Physical Dimensions (Cabinet)

Height	63 in.
Width	30 in.
Depth	29 in.

*Optionally available for 50-cps power. When the system is operating with 50-cps power, average access time increases and transfer rate reduces proportionally to the change in line frequency.